
VII. COMPLIANCE AND ENFORCEMENT HISTORY

Background

Until recently, EPA has focused much of its attention on ensuring compliance with specific environmental statutes. This approach allows the Agency to track compliance with the Clean Air Act, the Resource Conservation and Recovery Act, the Clean Water Act, and other environmental statutes. Within the last several years, the Agency has begun to supplement single-media compliance indicators with facility-specific, multimedia indicators of compliance. In doing so, EPA is in a better position to track compliance with all statutes at the facility level, and within specific industrial sectors.

A major step in building the capacity to compile multimedia data for industrial sectors was the creation of EPA's Integrated Data for Enforcement Analysis (IDEA) system. IDEA has the capacity to "read into" the Agency's single-media databases, extract compliance records, and match the records to individual facilities. The IDEA system can match Air, Water, Waste, Toxics/Pesticides/EPCRA, TRI, and Enforcement Docket records for a given facility, and generate a list of historical permit, inspection, and enforcement activity. IDEA also has the capability to analyze data by geographic area and corporate holder. As the capacity to generate multimedia compliance data improves, EPA will make available more in-depth compliance and enforcement information. Additionally, sector-specific measures of success for compliance assistance efforts are under development.

Compliance and Enforcement Profile Description

Using inspection, violation and enforcement data from the IDEA system, this section provides information regarding the historical compliance and enforcement activity of this sector. Compliance and enforcement records from EPA's data systems are compiled to the facility level using the Facility Registry System's (FRS) Master Source ID, which links records from virtually any of EPA's data systems to a facility record. For each facility (i.e., Master Source ID), the Industry Sector Notebooks analysis uses the facility-level SIC code that is designated by IDEA, which can be described as follows:

1. If the facility reports to TRI, then the designated SIC code is the primary SIC reported in the most recent TRI reporting year.
2. If the facility does not report to TRI, the first SIC codes from all linked AFS, PCS, RCRAInfo, BRS ID/permits are assembled. If more than one permit/ID exists for a particular program then only one record from that data system is used. The SIC code that occurs most often, if there is one,

becomes the designated SIC code.

3. If the facility does not report to TRI and no SIC code occurs more often than others, the designated SIC code is chosen from the linked programs in the following order: AFS, PCS, BRS, RCR, NCD, DCK. If more than one permit/ID exists for a particular program then only one record from that data system is used.

Note that EPA does not attempt to define the actual number of facilities that fall within each sector. Instead, the information presented in this section portrays the records of a subset of facilities within the sector that are well defined within EPA databases.

As a check on the relative size of the full sector universe, most notebooks contain an estimated number of facilities within the sector according to the Bureau of Census (See Section II). With sectors dominated by small businesses, such as metal finishers and printers, the reporting universe within the EPA databases may be small in comparison to Census data. However, the group selected for inclusion in this data analysis section should be consistent with this sector's general make-up.

Following this introduction is a list defining each data column presented within this section. These values represent a retrospective summary of inspections or enforcement actions, and solely reflect EPA, state and local compliance assurance activity that have been entered into EPA databases. To identify any changes in trends, the EPA ran two data queries, one for the past five calendar years (September 16, 1997 to September 15, 2002) and the other for the most recent 24-month period (September 16, 2000 to September 15, 2002). The five-year analysis gives an average level of activity for that period for comparison to the more recent activity.

Because most inspections focus on single-media requirements, the data queries presented in this section are taken from single media databases. These databases do not provide data on whether inspections are state/local or EPA-led. However, the table breaking down the universe of violations does give the reader a general measurement of the EPA's and states' efforts within each media program. The presented data illustrate the variations across Regions for certain sectors.³ This variation may be attributable to state/local data entry variations, specific geographic concentrations, proximity to population centers, sensitive ecosystems, highly toxic chemicals used in production, or historical noncompliance. Hence, the exhibited data

³ EPA Regions include the following states: I (CT, MA, ME, RI, NH, VT); II (NJ, NY, PR, VI); III (DC, DE, MD, PA, VA, WV); IV (AL, FL, GA, KY, MS, NC, SC, TN); V (IL, IN, MI, MN, OH, WI); VI (AR, LA, NM, OK, TX); VII (IA, KS, MO, NE); VIII (CO, MT, ND, SD, UT, WY); IX (AZ, CA, HI, NV, Pacific Trust Territories); X (AK, ID, OR, WA).

do not rank regional performance or necessarily reflect which regions may have the most compliance problems.

Compliance and Enforcement Data Definitions

General Definitions

Facility Registry System (FRS) -- this system assigns a common Master Source ID to EPA single-media permit records. The Master Source ID allows EPA to compile and review all permit, compliance, enforcement and pollutant release data for any given regulated facility.

Integrated Data for Enforcement Analysis (IDEA) -- is a data integration system that can retrieve information from the major EPA program office databases. IDEA uses the FRS maintained Master Source ID identification number to "glue together" separate data records from EPA's databases. This is done to create a "master list" of data records for any given facility. Some of the data systems accessible through IDEA are: AIRS (Air Facility Indexing and Retrieval System, Office of Air and Radiation), PCS (Permit Compliance System, Office of Water), RCRAInfo (Resource Conservation and Recovery Information System, Office of Solid Waste), NCDB (National Compliance Data Base, Office of Prevention, Pesticides, and Toxic Substances), CERCLIS (Comprehensive Environmental and Liability Information System, Superfund), and TRIS (Toxic Release Inventory System). IDEA also contains information from outside sources such as Dun and Bradstreet and the Occupational Safety and Health Administration (OSHA). Most data queries displayed in notebook sections IV and VII were conducted using IDEA.

Data Table Column Heading Definitions

Facilities in Search -- are based on the number of the FRS maintained Master Source IDs that were designated to the listed SIC code range. The SIC code range selected for each search is defined by each notebook's selected SIC code coverage described in Section II.

Facilities Inspected -- indicates the level of EPA and state agency inspections for the facilities in this data search. These values show what percentage of the facility universe is inspected in a 24- or 60- month period.

Number of Inspections -- measures the total number of inspections conducted in this sector. An inspection event is counted each time it is entered into a single media database.

Average Time Between Inspections -- provides an average length of time, expressed in months, that a compliance inspection occurs at a facility within

the defined universe.

Facilities with One or More Enforcement Actions -- expresses the number of facilities that were party to at least one enforcement action within the defined time period. This category is broken down further into federal and state actions. Data are obtained for administrative, civil/judicial, and criminal enforcement actions. Administrative actions include Notices of Violation (NOVs). A facility with multiple enforcement actions is only counted once in this column (facility with three enforcement actions counts as one). All percentages that appear are referenced to the number of facilities inspected.

Total Enforcement Actions -- describes the total number of enforcement actions identified for an industrial sector across all environmental statutes. A facility with multiple enforcement actions is counted multiple times (a facility with three enforcement actions counts as three).

State Lead Actions -- shows what percentage of the total enforcement actions are taken by state and local environmental agencies. Varying levels of use by states of EPA data systems may limit the volume of actions accorded state enforcement activity. Some states extensively report enforcement activities into EPA data systems, while other states may use their own data systems.

Federal Lead Actions -- shows what percentage of the total enforcement actions are taken by the United States Environmental Protection Agency. This value includes referrals from state agencies. Many of these actions result from coordinated or joint state/federal efforts.

Enforcement to Inspection Rate -- expresses how often enforcement actions result from inspections. This value is a ratio of enforcement actions to inspections, and is presented for comparative purposes only. This measure is a rough indicator of the relationship between inspections and enforcement. This measure simply indicates historically how many enforcement actions can be attributed to inspection activity. Reported inspections and enforcement actions under the Clean Water Act (PCS), the Clean Air Act (AFS) and the Resource Conservation and Recovery Act (RCRA) are included in this ratio. Inspections and actions from the TSCA/FIFRA/EPCRA database are not factored into this ratio because most of the actions taken under these programs are not the result of facility inspections. This ratio does not account for enforcement actions arising from non-inspection compliance monitoring activities (e.g., self-reported water discharges) that can result in enforcement action within the CAA, CWA and RCRA.

Facilities with One or More Violations Identified -- indicates the

percentage of inspected facilities having a violation identified in one of the following data categories: In Violation or Significant Violation Status (CAA); Reportable Noncompliance, Current Year Noncompliance, Significant Noncompliance (CWA); Noncompliance and Significant Noncompliance (FIFRA, TSCA, and EPCRA); Unresolved Violation and Unresolved High Priority Violation (RCRA). The values presented for this column reflect the extent of noncompliance within the measured time frame, but do not distinguish between the severity of the noncompliance. Percentages within this column can exceed 100 percent because facilities can be in violation status without being inspected. Violation status may be a precursor to an enforcement action, but does not necessarily indicate that an enforcement action will occur.

Media Breakdown of Enforcement Actions and Inspections -- four columns identify the proportion of total inspections and enforcement actions within EPA Air, Water, Waste, and TSCA/FIFRA/EPCRA databases. Each column is a percentage of either the “Total Inspections,” or the “Total Actions” column.

VII.A. Pulp and Paper Industry Compliance History

Table 20 provides an overview of the reported compliance and enforcement data for the pulp and paper industry over the past five years (September 16, 1997 to September 15, 2002). These data are also broken out by EPA Region thereby permitting geographical comparisons. A few points evident from the data are listed below.

- Regions 5, 4 and 1 contain the most pulp and paper facilities, while Regions 4, 6, and 3 conducted the most inspections.
- Region 4 conducted, by far, the most inspections of pulp and paper facilities, had the lowest average time between inspections, and had the most enforcement actions.
- Regions 2 and 10 had the most enforcement actions per inspection (0.19 and 0.13, respectively).

Table 20: Five-Year Enforcement and Compliance Summary for the Pulp and Paper Industry, by Region

A	B	C	D	E	F	G	H	I	J
Region	Facilities In Search	Facilities Inspected	Number of Inspections	Average Months Between Inspections	Facilities with 1 or More Enforcement Actions	Total Enforcement Actions	Percent of State Lead Actions	Percent of Federal Lead Actions	Enforcement to Inspection Rate
National	585	495	6,383	5	332	503	85%	15%	0.08
1	92	73	571	10	38	37	95%	5%	0.06
2	71	57	383	11	34	73	96%	4%	0.19
3	57	47	899	4	26	77	77%	23%	0.09
4	105	96	2,024	3	90	116	91%	9%	0.06
5	144	120	721	12	48	44	70%	30%	0.06
6	45	40	944	3	32	56	70%	30%	0.06
7	7	7	33	13	2	1	100%	0%	0.03
8	2	2	3	40	0	0	0%	0%	0
9	22	18	140	9	16	12	100%	0%	0.09
10	37	32	537	4	40	72	94%	6%	0.13

VII.B. Comparison of Enforcement Activity Between Selected Industries

Tables 21 and 22 allow the compliance history of the pulp and paper sector to be compared to the other industries covered by the industry sector notebooks. Comparisons between Tables 21 and 22 permit the identification of trends in compliance and enforcement records of the industry by comparing data covering the last five years to that of the past two years. Some points evident from the data are listed below.

- Pulp and paper mills are tied with petroleum refineries as the most frequently inspected sectors of those listed.
- Pulp and paper mills have a relatively high percent of facilities with violations and enforcement actions and a relatively high rate of enforcement per inspection compared to the other sectors listed.

Tables 23 and 24 provide a more in-depth comparison between the pulp and paper industry and other sectors by breaking out the compliance and enforcement data by environmental statute. As in the previous Tables (Tables 21 and 22), the data cover the last five years (Table 23) and the last two years (Table 24) to facilitate the identification of recent trends. Two points evident from the data are listed below.

- The majority of inspections and actions are conducted under the CAA, followed by the CWA.
- In the past 2 years, the portion of actions taken under the CAA is increasing, while that taken under the CWA is decreasing.
- The pulp and paper industry has one of the lowest percentages of RCRA inspections and actions of those sectors listed.

Table 21: Five-Year Enforcement and Compliance Summary for Selected Industries										
A	B	C	D	E	F	G	H	I	J	
Industry Sector	Facilities in Search	Facilities Inspected	Number of Inspections	Average Months Between Inspections	Facilities with 1 or More Enforcement Actions	Total Closed Enforcement Actions	Percent State Lead Actions	Percent Federal Lead Actions	Enforcement to Inspection Rate	
Agricultural Crop Production	146	73	164	53	10	5	60%	40%	0.03	
Agricultural Livestock Production	71	30	114	37	8	6	33%	67%	0.05	
Metal Mining	293	188	1,003	18	58	60	82%	18%	0.06	
Oil and Gas Extraction	2,675	1,620	6,386	25	794	640	94%	6%	0.1	
Non-Fuel, Non-Metal Mining	3,771	2,193	10,806	21	532	548	94%	6%	0.05	
Textiles	1,284	911	4,002	19	278	271	86%	14%	0.07	
Lumber and Wood	3,260	2,181	11,336	17	834	759	85%	15%	0.07	
Wood Furniture and Fixtures	1,746	1,166	5,822	18	386	314	86%	14%	0.05	
Pulp and Paper	585	495	6,383	5	332	503	85%	15%	0.08	
Printing	2,445	1,589	5,100	29	434	378	87%	13%	0.07	
Inorganic Chemicals	1,092	700	5,654	12	386	421	74%	26%	0.07	
Plastic Resins and Fibers	779	545	4,964	9	320	429	84%	16%	0.09	
Pharmaceuticals	628	463	2,605	14	204	215	78%	22%	0.08	
Organic Chemicals	1,107	832	8,839	8	574	811	72%	28%	0.09	
Ag. Chem., Pesticide & Fertilizer	674	375	2,290	18	218	160	52%	48%	0.07	
Petroleum Refining	476	324	6,238	5	348	1,153	70%	31%	0.18	
Rubber and Plastic	3,870	2,313	8,651	27	834	685	88%	12%	0.08	
Stone, Clay, Glass and Concrete	3,625	2,214	13,144	17	838	933	90%	10%	0.07	
Iron and Steel	704	517	7,285	6	320	493	72%	28%	0.07	
Metal Castings	1,383	822	3,728	22	338	343	78%	22%	0.09	
Nonferrous Metals	561	358	3,340	10	258	446	89%	11%	0.13	
Metal Products	8,426	5,268	16,959	30	1,982	1,593	75%	25%	0.09	
Electronics and Computers	1,663	925	2,670	37	296	220	74%	26%	0.08	
Motor Vehicle Assembly	1,880	1,247	5,340	21	424	381	82%	18%	0.07	
Aerospace	791	549	2,756	17	258	239	62%	38%	0.09	
Shipbuilding and Repair	230	171	859	16	100	110	74%	26%	0.13	
Ground Transportation	4,991	3,316	13,160	23	796	662	0%	0%	0.05	
Water Transportation	263	166	406	39	42	33	82%	18%	0.08	
Air Transportation	436	242	669	39	72	65	74%	26%	0.1	
Fossil Fuel Electric Power Generation	3,295	2,335	18,122	11	1,062	1,346	83%	17%	0.07	
Dry Cleaning	3,390	1,851	3,469	59	210	141	91%	9%	0.04	

* Transportation equipment cleaning sector not included because sector is not classified by SIC code and no compliance data are available.

Table 22: Two-Year Enforcement and Compliance Summary for Selected Industries

A Industry Sector	B Facilities in Search	C Facilities Inspected	D Number of Inspections	E Facilities with 1 or More Violations		F Facilities with 1 or more Enforcement Actions		G Total Closed Enforcement Actions	H Enforcement to Inspection Rate
				Number	Percent*	Number	Percent*		
Agricultural Crop Production	146	38	65	10	26%	2	5%	1	0.02
Agricultural Livestock Production	71	8	16	6	75%	6	75%	5	0.31
Metal Mining	293	124	290	74	60%	28	23%	23	0.08
Oil and Gas Extraction	2,675	931	2,135	363	39%	546	59%	352	0.16
Non-Fuel, Non-Metal Mining	3,771	1,340	3,389	328	24%	234	17%	204	0.06
Textiles	1,284	630	1,256	220	35%	174	28%	145	0.12
Lumber and Wood	3,260	1,467	3,714	580	40%	380	26%	328	0.09
Wood Furniture and Fixtures	1,746	752	1,916	316	42%	182	24%	139	0.07
Pulp and Paper	585	379	1,837	238	63%	158	42%	185	0.1
Printing	2,445	855	1,699	359	42%	234	27%	162	0.1
Inorganic Chemicals	1,092	473	1,793	242	51%	172	36%	141	0.08
Plastic Resins and Fibers	779	411	1,652	215	52%	164	40%	161	0.1
Pharmaceuticals	628	288	828	155	54%	76	26%	62	0.07
Organic Chemicals	1,107	599	2,782	365	61%	264	44%	261	0.09
Agricultural Chemical Pesticide & Fertilizer	674	232	734	108	47%	60	26%	37	0.05
Petroleum Refining	476	240	1,738	191	80%	224	93%	447	0.26
Rubber and Plastic	3,870	1,443	2,992	641	44%	408	28%	313	0.1
Stone, Clay, Glass and Concrete	3,625	1,488	4,254	496	33%	388	26%	351	0.08
Iron and Steel	704	373	2,201	250	67%	144	39%	149	0.07
Metal Castings	1,383	495	1,153	302	61%	180	36%	172	0.15
Nonferrous Metals	561	223	965	150	67%	118	53%	159	0.16
Metal Products	8,426	2,908	5,704	1,728	59%	884	30%	588	0.1
Electronics and Computers	1,663	469	862	320	68%	140	30%	86	0.1
Motor Vehicle Assembly	1,880	816	1,897	410	50%	218	27%	167	0.09
Aerospace	791	329	854	179	54%	96	29%	69	0.08
Shipbuilding and Repair	230	100	295	63	63%	48	48%	35	0.12
Ground Transportation	4,991	2,059	4,696	490	24%	458	22%	327	0.07
Water Transportation	263	81	126	31	38%	6	7%	4	0.03
Air Transportation	436	112	216	52	46%	32	29%	18	0.08
Fossil Fuel Electric Power Generation	3,295	1,810	6,355	701	39%	520	29%	493	0.08
Dry Cleaning	3,390	785	1,212	238	30%	74	9%	50	0.04

*Percentages in Columns E and F are based on the number of facilities inspected (Column C). Percentages can exceed 100% because violations and actions can occur without a facility inspection.
 †Transportation equipment cleaning sector not included because sector is not classified by SIC code and no compliance data are available.

Table 23: Five-Year Inspection and Enforcement Summary by Statute for Selected Industries											
Industry Sector	Facilities Inspected	Total Inspections	Total Closed Enforcement Actions	Clean Air Act		Clean Water Act		RCRA		FIFRA/TSCA/EPCRA/Other	
				% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions
Agricultural Crop Production	73	164	5	61%	40%	0%	0%	36%	20%	3%	40%
Agricultural Livestock Production	30	114	6	48%	50%	0%	17%	49%	17%	3%	17%
Metal Mining	188	1,003	60	61%	52%	26%	43%	13%	3%	1%	2%
Oil and Gas Extraction	1,620	6,386	640	96%	93%	0%	1%	4%	6%	0%	0%
Non-Fuel, Non-Metal Mining	2,193	10,806	548	97%	98%	1%	1%	1%	1%	0%	0%
Textiles	911	4,002	271	74%	56%	13%	27%	13%	13%	1%	4%
Lumber and Wood	2,181	11,336	759	77%	73%	1%	2%	22%	24%	1%	2%
Wood Furniture and Fixtures	1,166	5,822	314	75%	74%	0%	1%	24%	24%	1%	1%
Pulp and Paper	495	6,383	503	68%	73%	24%	20%	7%	5%	1%	2%
Printing	1,589	5,100	378	65%	66%	0%	0%	35%	32%	1%	2%
Inorganic Chemicals	700	5,654	421	50%	50%	12%	13%	36%	28%	2%	10%
Plastic Resins and Fibers	545	4,964	429	51%	55%	19%	22%	29%	21%	2%	3%
Pharmaceuticals	463	2,605	215	48%	46%	6%	8%	44%	36%	2%	10%
Organic Chemicals	832	8,839	811	48%	48%	12%	15%	38%	30%	3%	7%
Agricultural Chemical Pesticide & Fertilizer	375	2,290	160	57%	31%	12%	9%	26%	21%	5%	39%
Petroleum Refining	324	6,238	1,153	63%	79%	12%	8%	24%	12%	1%	1%
Rubber and Plastic	2,313	8,651	685	69%	69%	1%	1%	29%	24%	1%	6%
Stone, Clay, Glass and Concrete	2,214	13,144	933	86%	87%	1%	1%	12%	10%	1%	2%
Iron and Steel	517	7,285	493	66%	62%	11%	14%	23%	21%	0%	3%
Metal Castings	822	3,728	343	64%	60%	2%	3%	33%	33%	1%	5%
Nonferrous Metals	358	3,340	446	65%	68%	7%	8%	27%	22%	1%	2%
Metal Products	5,268	16,959	1,593	45%	41%	2%	2%	52%	51%	1%	7%
Electronics and Computers	925	2,670	220	34%	16%	4%	4%	60%	67%	2%	13%
Motor Vehicle Assembly	1,247	5,340	381	61%	59%	1%	1%	37%	36%	0%	4%
Aerospace	549	2,756	239	48%	36%	3%	3%	48%	57%	0%	3%
Shipbuilding and Repair	171	859	110	58%	30%	5%	9%	36%	61%	1%	0%
Ground Transportation	3,316	13,160	662	78%	0%	1%	0%	21%	0%	0%	0%
Water Transportation	166	406	33	40%	33%	2%	0%	57%	67%	1%	0%
Air Transportation	242	669	65	31%	28%	2%	5%	67%	66%	0%	2%
Fossil Fuel Electric Power Generation	2,335	18,122	1,346	75%	85%	19%	9%	5%	4%	1%	2%
Dry Cleaning	1,851	3,469	141	36%	20%	0%	0%	64%	80%	0%	0%

* Transportation equipment cleaning sector not included because sector is not classified by SIC code and no compliance data are available.

Table 24: Two-Year Inspection and Enforcement Summary by Statute for Selected Industries											
Industry Sector	Facilities Inspected	Total Inspections	Total Closed Enforcement Actions	Clean Air Act		Clean Water Act		RCRA		FIFRA/TSCA/EPCRA/Other	
				% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions
Agricultural Crop Production	38	65	1	59%	100%	0%	0%	37%	0%	5%	0%
Agricultural Livestock Production	8	16	5	81%	60%	0%	20%	19%	0%	0%	20%
Metal Mining	124	290	23	46%	61%	35%	39%	19%	0%	0%	0%
Oil and Gas Extraction	931	2,135	352	97%	97%	0%	1%	3%	2%	0%	0%
Non-Fuel, Non-Metal Mining	1,340	3,389	204	97%	99%	1%	1%	2%	1%	0%	1%
Textiles	630	1,256	145	71%	61%	16%	22%	13%	13%	0%	3%
Lumber and Wood	1,467	3,714	328	75%	75%	1%	1%	24%	22%	0%	2%
Wood Furniture and Fixtures	752	1,916	139	75%	85%	0%	0%	25%	14%	0%	1%
Pulp and Paper	379	1,837	185	64%	81%	28%	13%	7%	4%	0%	1%
Printing	855	1,699	162	64%	0%	0%	0%	35%	0%	1%	0%
Inorganic Chemicals	473	1,793	141	44%	56%	14%	12%	42%	25%	0%	7%
Plastic Resins and Fibers	411	1,652	161	50%	65%	21%	14%	29%	19%	0%	2%
Pharmaceuticals	288	828	62	44%	45%	7%	11%	49%	37%	0%	6%
Organic Chemicals	599	2,782	261	43%	52%	14%	13%	40%	31%	2%	4%
Agricultural Chemical Pesticide & Fertilizer	232	734	37	51%	38%	13%	14%	33%	24%	3%	24%
Petroleum Refining	240	1,738	447	52%	83%	16%	6%	32%	10%	0%	1%
Rubber and Plastic	1,443	2,992	313	69%	79%	2%	0%	29%	20%	0%	2%
Stone, Clay, Glass and Concrete	1,488	4,254	351	86%	85%	2%	2%	12%	10%	0%	2%
Iron and Steel	373	2,201	149	60%	70%	13%	9%	27%	17%	0%	4%
Metal Castings	495	1,153	172	58%	60%	3%	2%	38%	33%	0%	4%
Nonferrous Metals	223	965	159	59%	80%	8%	3%	32%	16%	0%	2%
Metal Products	2,908	5,704	588	43%	46%	3%	1%	54%	43%	0%	9%
Electronics and Computers	469	862	86	30%	12%	5%	5%	65%	63%	1%	21%
Motor Vehicle Assembly	816	1,897	167	57%	63%	2%	1%	41%	32%	0%	5%
Aerospace	329	854	69	46%	44%	4%	0%	50%	51%	0%	6%
Shipbuilding and Repair	100	295	35	59%	37%	6%	11%	35%	51%	0%	0%
Ground Transportation	2,059	4,696	327	75%	0%	1%	0%	24%	0%	0%	0%
Water Transportation	81	126	4	43%	50%	2%	0%	56%	50%	0%	0%
Air Transportation	112	216	18	29%	39%	1%	0%	69%	56%	0%	6%
Fossil Fuel Electric Power Generation	1,810	6,355	493	73%	87%	21%	8%	6%	3%	0%	2%
Dry Cleaning	785	1,212	50	37%	6%	0%	0%	63%	94%	0%	0%

* Transportation equipment cleaning sector not included because sector is not classified by SIC code and no compliance data are available.

Sector Facility Indexing Project -- Additional compliance information for the pulp and paper industry is available through EPA's Sector Facility Indexing Project (SFIP). This is a website that brings together environmental and other information from a number of data systems to produce facility-level profiles for five industry sectors (pulp manufacturing, petroleum refining, iron and steel production, primary nonferrous metal refining and smelting, and automobile assembly) and a subset of major federal facilities. SFIP information relates to compliance and inspection history, chemical releases and spills, demographics of the surrounding population and production. (Contact: SFIP hotline at 617-520-3015 or the website at <http://www.epa.gov/sfipmtn1/>)

VII.C. Review of Major Legal Actions

This section provides summary information about major cases that have affected this sector, and a list of Supplementary Environmental Projects (SEPs). SEPs are compliance agreements that reduce a facility's stipulated penalty in return for an environmental project that exceeds the value of the reduction. Often, these projects fund pollution prevention activities that can significantly reduce the future pollutant loadings of a facility.

This section discusses major legal cases and pending litigation within the pulp and paper industry as well as supplemental environmental projects (SEPs) involving pulp and paper facilities. Information regarding major cases or pending litigation is available from the Office of Regulatory Enforcement.

VII.C.1. Review of Major Cases

In FY 1999 and FY 2000, three significant enforcement cases affecting the pulp and paper industry were concluded.

Potlatch Corporation. A Clean Air Act settlement was reached with the Potlatch Corporation of Lewiston, ID. From 1991 to 1996, Potlatch burned used tires in the boiler at its Lewiston, Idaho, pulp mill plant. In 1997, EPA issued Potlatch a Notice of Violation alleging that the burning of tires resulted in sulfur dioxide emissions that exceeded limits in a Clean Air Act permit issued by EPA in 1980 and also exceeded limits in a permit issued by the State in 1979. The notice also alleged that the switch to burning tires was the type of change that required Potlatch to first obtain a permit under the Clean Air Act's Prevention of Significant Deterioration preconstruction review program. Following issuance of the Notice of Violation, settlement negotiations took place and an agreement was reached to settle the violations described in the notice by payment of a \$500,000 civil penalty. Potlatch has the option of burning tires if it obtains a permit and installs the required pollution control devices, but has elected not to do so.

Crane & Co., Inc. Crane & Co., Inc. (“Crane”), of Dalton, MA operates as a manufacturer and distributor of high quality specialty paper for the securities, legal, banking and business markets. This family owned and run company is nearly 200 years old, and has successfully held a currency paper contract with the U.S. Department of Treasury for 121 years. EPA’s civil administrative complaint under the Emergency Planning and Community Right to Know Act (EPCRA) focused on violations found at three of Crane’s facilities in Dalton and Pittsfield, MA.

Since calendar year 1994, Crane failed to file chemical inventory information (Tier II forms) for three of its manufacturing facilities with the State Emergency Response Commission (SERC), Local Emergency Planning Committee (LEPC) or local fire departments, as required by Section 312 of EPCRA. In total, Crane failed to report 28 chemicals, including sulfuric acid and formaldehyde (a component of melamine resin), which EPCRA classifies as Extremely Hazardous Substances.

By the terms of the September 2000 settlement of this action, Crane will pay a penalty of \$8,164 and perform a supplemental environmental project (SEP) estimated to cost between \$26,832 and \$100,000. The SEP consists of replacing sodium hypochlorite as a bleaching agent in the non-wood pulp paper-making processes at the Pioneer Mill in Dalton with a 50 percent hydrogen peroxide solution. Use of peroxide bleaching will reduce human and environmental exposure to residual chlorine and chlorite ions that result from use of sodium hypochlorite. In addition, replacement of sodium hypochlorite with hydrogen peroxide will eliminate potential exposure of first responders and on-site workers to chlorine gas, which can be created if sodium hypochlorite is improperly mixed, used, or stored. Finally, discontinuing the use of sodium hypochlorite will reduce the environmental threat posed by discharging chlorinated organic compounds into the receiving waters of the Housatonic River.

Appleton Papers. Appleton Papers in Roaring Spring, Pennsylvania produces pulp using the kraft process and paper using mechanical paper machines. Initially EPA issued a compliance order to Appleton requiring the initial performance test of the brown stock washer system and installation of the continuous emission monitoring system (CEMS) required by the NSPS of the Clean Air Act. These violations were subsequently referred to the Department of Justice on 12/30/98, and a Notice of Violation was issued to Appleton on 4/19/99. Following a series of negotiations, EPA and Appleton reached a settlement which provided for a cash penalty of \$490,000 and early compliance with the Pulp and Paper MACT. The penalty reflects the avoided costs of installation of Total Reduced Sulfur CEMS, as well as the company’s adherence to EPA’s initial compliance order. The Consent Decree was lodged August 16, 2000.

VII.C.2. Supplementary Environmental Projects

SEPs are compliance agreements that reduce a facility's non-compliance penalty in return for an environmental project that exceeds the value of the reduction. Often, these projects fund pollution prevention activities that can reduce the future pollutant loadings of a facility. Information on SEP cases can be accessed via the Internet at <http://www.epa.gov/compliance/resources/policies/civil/seps/index.html>.

Table 25 presents nine examples of SEPs negotiated with pulp and paper facilities.

Six of the cases were associated with EPCRA – most relate to a failure to notify community and state emergency coordinators of a hazardous substance release (§304), a violation of emergency and hazardous chemical inventory form requirements (§312), or a violation of toxic chemical release form requirements (§313). In addition, there were multiple cases involving a violation of permit requirements for treatment, storage, or disposal of hazardous waste (RCRA §3005).

There were three general types of SEPs seen within the pulp and paper settlements:

- Three of the SEPs involve **emergency planning and response**. In each case, the defendants purchased equipment for local emergency response authorities.
- Five SEPs provide a form of **pollution reduction**. These were facility-specific, but generally involved the replacement of equipment that is more efficient or less prone to environmental releases.
- Two SEPs involve **pollution prevention**. These projects involved the installation of technologies that reuse process waste.

Table 25: FY-1996-1999 Supplemental Environmental Projects Overview: Pulp and Paper Manufacture

FY	General Information			Violation Information			Supplemental Environmental Project Information	
	Docket #	Company Name	State/Region	Type	Assessed Penalty	SEP Cost to Company	SEP Category	SEP Description
1999	04-1999-0052	Champion International Corporation	AL	EPCRA 312	\$2,680	\$10,720	Emergency Planning and Preparedness	Improve emergency notification to public by purchasing dictaphone and 16-channel recorder
1998	10-1997-0163	Longview Fibre Company	WA	EPCRA 304, 325	\$8,539	\$30,738	Emergency Planning and Preparedness	Purchase emergency response equipment for Cowlitz County Emergency Responders Project
1998	06-1998-0074	Nicolaus Paper, Inc.	LA	RCRA 3005	\$2,450	\$31,910	Pollution Prevention	Implement fiber and chemical recovery system that reduces fiber and chemical loss from manufacturing process.
1998	10-1997-0107	Weyerhaeuser Company	WA	EPCRA 304, 325	\$400,000		Emergency Planning and Preparedness	Donate emergency equipment for five counties at a cost of \$285,000 and \$10,000 for weather web page.
1997	10-94-0197	Ketchikan Pulp Company	AK	CAA 165	\$359,000	\$2,200,000	Pollution Prevention, Pollution Reduction	Shut down and dismantle wood waste incinerator and install wood-fired boiler with electrified fluidized bed (EFB) as control device.
1997	10-96-0087	Smurfit Newsprint Corporation	OR	EPCRA 313	\$5,602	\$159,514	Pollution Reduction	Construct containment dams to capture and treat spills entering Willamette River.
1996	01-94-0008	Crown Paper Co./James River Paper Co.	NH	CERCLA 103 CWA 101 CWA 307 EPCRA 304 RCRA 3005	\$200,000	\$460,000	Pollution Reduction	Capture total reduced sulfur (TRS) gases from pump station for incineration.
1996	02-95-0165	Little Rapids Corp.	NY	TSCA 6(e)	\$6,500	\$44,972	Pollution Reduction	Remove, replace, and dispose of 2 PCB transformers, 1 PCB-contaminated transformer.
1996	01-95-0103	Simkins Industries	CT	EPCRA 313	\$13,600	\$50,000	Pollution Reduction	Removal, disposal, and replacement of 1950's PCB transformer at the New Haven Board Mill and a non-PCB transformer.

VIII. COMPLIANCE ACTIVITIES AND INITIATIVES

This section highlights the activities undertaken by this industry sector and public agencies to voluntarily improve the sector's environmental performance. These activities include those independently initiated by industrial trade associations. In this section, the notebook contains a listing and description of national and regional trade associations.

VIII.A. Sector-Related Environmental Programs and Activities

National Environmental Performance Track

EPA's National Environmental Performance Track Program is designed to motivate and reward top environmental performance. By encouraging a systematic approach to managing environmental responsibilities, taking extra steps to reduce and prevent pollution, and being good corporate neighbors, the program is rewarding companies that strive for environmental excellence. At the same time, many participating companies are finding that they are saving money and improving productivity. Five pulp and paper mills are participating in the program. (Contact: Performance Track hotline at 888-339-PTRK or the website at www.epa.gov/performancectrack/.)

WasteWi\$e Program

The WasteWi\$e Program was started in 1994 by EPA's Office of Solid Waste and Emergency Response. The program is aimed at reducing municipal solid wastes by promoting waste minimization, recycling collection and the manufacturing and purchase of recycled products. As of 2001, the program had about 1,175 companies as members, including a number of major corporations. Members agree to identify and implement actions to reduce their solid wastes and must provide EPA with their waste reduction goals along with yearly progress reports. EPA in turn provides technical assistance to member companies and allows the use of the WasteWi\$e logo for promotional purposes. Twenty one pulp and paper companies are partners. (Contact: Jeff Tumarkin at EPA's Office of Solid Waste and Emergency Response at 703-308-8686 or Tumarkin.Jeff@epa.gov, or the WasteWi\$e Hotline at 800-EPA-WISE (372-9473) or www.epa.gov/wastewise/.)

Project XL

Project XL, which stands for "eXcellence and Leadership," is a national pilot program that allows state and local governments, businesses and federal facilities to develop with EPA innovative strategies to test better or more cost-effective ways of achieving environmental and public health protection. In exchange, EPA will issue regulatory, program, policy, or procedural

flexibilities to conduct the experiment. Under Project XL private businesses, federal facilities, business sectors and state and local governments are conducting experiments that address the following eight Project XL selection criteria:

1. produce superior environmental results beyond those that would have been achieved under current and reasonably anticipated future regulations or policies
2. produce benefits such as cost savings, paperwork reduction, regulatory flexibility or other types of flexibility that serve as an incentive to both project sponsors and regulators
3. supported by stakeholders
4. achieve innovation/pollution prevention
5. produce lessons or data that are transferable to other facilities
6. demonstrate feasibility
7. establish accountability through agreed upon methods of monitoring, reporting, and evaluations
8. avoid shifting the risk burden, i.e., do not create worker safety or environmental justice problems as a result of the experiment.

By 2002, three pulp and paper companies (Georgia-Pacific, International Paper, and Weyerhaeuser) had undertaken projects under Project XL. (For more information, contact Adam Levitan in the Office of Reinvention Programs at 202-566-1466 or levitan.adam@epa.gov, or the website at www.epa.gov/projectxl/.)

Energy Star

In 1991, EPA introduced Green Lights®, a program designed for businesses and organizations to proactively combat pollution by installing energy efficient lighting technologies in their commercial and industrial buildings. In April 1995, Green Lights® expanded into Energy Star® Buildings—a strategy that optimizes whole-building energy-efficiency opportunities. The energy needed to run commercial and industrial buildings in the United States produces 19 percent of U.S. carbon dioxide emissions, 12 percent of nitrogen oxides, and 25 percent of sulfur dioxide, at a cost of \$110 billion a year. If implemented in every U.S. commercial and industrial building, the Energy Star® Buildings upgrade approach could prevent up to 35 percent of the emissions associated with these buildings and cut the nation's energy bill

by up to \$25 billion annually.

The more than 7,000 participants include corporations, small businesses, universities, health care facilities, nonprofit organizations, school districts, and federal and local governments. Energy Star has successfully delivered energy and cost savings across the country, saving businesses, organizations, and consumers more than \$5 billion a year. Over the past decade, Energy Star has been a driving force behind the more widespread use of such technological innovations as LED traffic lights, efficient fluorescent lighting, power management systems for office equipment, and low standby energy use.

Manufacturers can become partners in Energy Star by pledging to undertake the following steps:

1. Measure, track, and benchmark their organization's energy performance by using tools such as those offered by Energy Star
2. Develop and implement a plan to improve energy performance in their facilities and operations by adopting the strategy provided by Energy Star
3. Educate their staff and the public about our partnership with Energy Star, and highlight our achievements with the Energy Star label, where available.

(Contact: Energy Star Hotline, 1-888-STAR-YES (1-888-782-7937) or <http://www.energystar.gov/default.shtml>.)

NICE³

The U.S. Department of Energy administers a grant program called The National Industrial Competitiveness through Energy, Environment, and Economics (NICE³). By providing grants of up to 50 percent of the total project cost, the program encourages industry to reduce industrial waste at its source and become more energy-efficient and cost-competitive through waste minimization efforts. Grants are used by industry to design, test, demonstrate, and assess the feasibility of new processes and/or equipment with the potential to reduce pollution and increase energy efficiency. The program is open to all industries; however, priority is given to proposals from participants in the chemicals, agriculture, aluminum, pulp and paper, glass, metal casting, mining, petroleum, and steel industries. (Contact: DOE's Golden Field Office 303-275-4728, or see the website at www.oit.doe.gov/nice3.)

EPA Audit Policy

The U.S. Environmental Protection Agency (EPA) encourages companies with multiple facilities to take advantage of the Agency's Audit Policy (Incentives for Self-Policing: Discovery, Disclosure, Correction and Prevention of Violations, 65 Fed. Reg. 19618 (April 11, 2000)) to conduct audits and develop environmental compliance systems. The Audit Policy eliminates gravity-based penalties for companies that voluntarily discover, promptly disclose and expeditiously correct violations of federal environmental law. More information on EPA's Audit Policy can be obtained from the Web site at: <http://www.epa.gov/compliance/resources/policies/incentives/auditing/index.html>.

Small Business Compliance Policy

The Small Business Compliance Policy promotes environmental compliance among small businesses (those with 100 or fewer employees) by providing incentives to discover and correct environmental problems. EPA will eliminate or significantly reduce penalties for small businesses that voluntarily discover violations of environmental law and promptly disclose and correct them. A wide range of resources are available to help small businesses learn about environmental compliance and take advantage of the Small Business Compliance Policy. These resources include: training, checklists, compliance guides, mentoring programs, and other activities. Businesses can find more information through links on the Web site: <http://www.epa.gov/smallbusiness/>.

Compliance Assistance Clearinghouse

The National Environmental Compliance Assistance Clearinghouse is a Web-based clearinghouse designed to provide quick access to compliance assistance tools, contacts, and planned activities across EPA and other compliance assistance providers. The Clearinghouse also serves as a forum to collaborate and exchange information. The Clearinghouse provides links to compliance assistance activities, tools, or technical assistance that: 1) assist the regulated community in understanding and complying with environmental regulations; or 2) assist compliance assistance providers in helping the regulated community to comply with environmental regulations. The Clearinghouse Web site is <http://www.epa.gov/clearinghouse/>.

VIII.B. Trade Association/Industry Sponsored Activities**VIII.B.1. Environmental Programs***Global Environmental Management Initiative*

The Global Environmental Management Initiative (GEMI) is made up of group of leading companies dedicated to fostering environmental excellence by business. GEMI promotes a worldwide business ethic for environmental management and sustainable development, to improve the environmental performance of business through example and leadership. In 2001, GEMI's membership consisted of about 40 major corporations including the pulp and paper company Georgia-Pacific. (Contact: GEMI at 202-296-7449 or see the website at: www.gemi.org.)

ISO 14000

ISO 14000 is a series of internationally-accepted standards for environmental management. The series includes standards for environmental management systems (EMS), guidelines on conducting EMS audits, standards for auditor qualifications, and standards and guidance for conducting product lifecycle analysis. Standards for auditing and EMS were adopted in September 1996, while other elements of the ISO 14000 series are currently in draft form. While regulations and levels of environmental control vary from country to country, ISO 14000 attempts to provide a common standard for environmental management. The governing body for ISO 14000 is the International Organization for Standardization (ISO), a worldwide federation of over 110 country members based in Geneva, Switzerland. The American National Standards Institute (ANSI) is the United States representative to ISO. Information on ISO is available at the following Internet site: <http://www.iso.ch/iso/en/ISOOnline.openerpage>.

50 Percent Paper Recovery Goal

At the beginning of this decade, the U.S. paper industry made an unprecedented public commitment to expand paper recovery and recycling by establishing a goal to recover 40 percent of all the paper Americans used in 1995. That program involved a wide array of tools to encourage efficient paper recovery as well as a major financial commitment by U.S. papermakers to expand recycling capacity at their mills. The public-private partnership that evolved proved enormously successful: the industry's goal was achieved a year ahead of schedule.

Given the success of this initiative, the industry, through its trade association, the American Forest & Paper Association, established a new goal to recover 50 percent of all the paper Americans use and to continue its work to

promote efficient paper recovery programs. By 2000, the U.S. paper recovery rate was 48 percent. (Contact: AF&PA at 202-463-2700 or see the website at www.afandpa.org.)

100% Recycled Paperboard Alliance

The 100% Recycled Paperboard Alliance (RPA-100%) is a group of leading North American recycled paperboard manufacturers representing nearly two-thirds of the recycled paperboard industry, and a sponsor of America Recycles Day.

RPA-100% encourages packaged goods and companies to use 100% recycled paperboard and educates consumers about the importance of buying recycled. Almost fifty companies have joined a new initiative from the 100% Recycled Paperboard Alliance, displaying the "100% Recycled Paperboard" symbol on their brand name and private label products. (Contact: 100% Recycled Paperboard Alliance at 877-772-6200 or see the website at www.rpa100.com.)

Agenda 2020

In 1994, the American Forest and Paper Association joined with the U.S. Department of Energy to launch Agenda 2020, an innovative, collaborative research program. Through Agenda 2020, a consortium of research institutions, industry, and national laboratories is developing new technologies, processes and measurements to manufacture products more efficiently and cost-effectively while reducing environmental impacts of operations and maximizing the efficient use and reuse of resources.

To meet these objectives, Agenda 2020 has identified six technology focus areas for collaborative research efforts. These six task groups represent a broad cross section of the forest products industry:

1. Sustainable Forest Management
2. Environmental Performance
3. Energy Performance
4. Improved Capital Effectiveness
5. Recycling
6. Sensors and Controls

Particularly noteworthy is the effort within the Agenda 2020 partnership to develop biomass gasification technologies. If fully commercialized, these technologies could make the U.S. forest products industry totally energy self-reliant and generate a surplus of 22 gigawatts of power to the grid—the equivalent of one-half of California's peak summertime electric use. The carbon displacement from biomass gasification could be even more dramatic,

transforming the industry from *emitting* 24 million tons of carbon each year to *displacing* at least 18 million tons of greenhouse gas from fossil fuels – before taking into consideration the carbon sequestration benefits of forests.

Black liquor (see Section III for a description) is one biomass fuel created during the chemical pulping process. Gasification converts these pulping extractives and other forms of biomass into combustible gases that can be efficiently burned like natural gas. If fully commercialized, these technologies could produce enormous energy and environmental benefits. The first commercial-scale biomass (black liquor) plant is being built by Georgia-Pacific Corp. in Big Island, VA. It is slated to go on-line in 2003. Other commercialization tests will continue over the next 10 years, if adequately funded. Industry participants are putting up 50 percent of the investment capital for these demonstration projects. (Contact: AF&PA at 202-463-2700 or see the website at www.agenda2020.org.)

VIII.B.2. Summary of Trade Associations

The trade and professional organizations serving the pulp and paper industry are lead by the American Forest and Paper Association (AFPA), formerly the American Paper Institute (API). They have been actively involved in a number of recent rulemakings (under CAA, CWA and RCRA) that will affect their members. The National Council of the Paper Industry for Air and Stream Improvement (NCASI) does technical research for the industry. The Technical Association of the Pulp and Paper Industry (TAPPI), is a technical clearinghouse for the industry; they disseminate technical information to production facility staff throughout the U.S.

American Forest and Paper Association

1111 19th Street, NW
Suite 800
Washington, DC 20036
Phone: 202-463-2700
Fax: 202-463-2471

Members: 450
Staff: 140
Contact: Josephine Cooper,
V.P. for Environment and
Regulatory Affairs

Internet:

www.afandpa.org

The National Forest Products Association merged with the American Paper Institute (API) in 1993 to become the American Forest and Paper Association (AF&PA). AF&PA is the national trade association for the forest, pulp, paper, paperboard, and wood products industry. The organization focuses on information gathering/dissemination, research on industry technical issues, and represents the industry in regulatory and legislative matters. The AF&PA takes an active role by representing its members before

governmental agencies, such as on the recent integrated air and water rule. Some current environmental initiatives include the 2020 Research Agenda, 50 percent recycling goal, and the Sustainable Forestry Initiative. The AF&PA publishes a variety of documents for and about its membership. Some relevant publications include the annual industry wide reviews *Capacity Report* and *Statistics of Paper, Paperboard, and Wood Pulp*, the *Paper, Paperboard, and Wood Pulp Monthly Statistical Summary*, and the *Dictionary of Paper*, published every ten years. Circulation for these publications is listed at 1,000. The AF&PA holds an annual meeting every March in New York City.

National Council of the Paper Industry for Air and Stream Improvement
P.O. Box 13318
Research Triangle Park, NC 27709
Phone: 919-558-1999
Fax: 919-558-1998
Internet: www.ncasi.org
Members: 78
Staff: 90
Budget: \$10,000,000
Contact: Dr. Ronald Yeske

Founded in 1943, the National Council of the Paper Industry for Air and Stream Improvement (NCASI) presently conducts research on environmental problems related to industrial forestry and the manufacture of pulp, paper, and wood products. NCASI produces technical documents on environmental issues facing the pulp and paper industry and conducts industry conferences. Publications include: a biweekly bulletin on general issues and a variety of technical bulletins (40/year). NCASI also holds an annual March convention in New York City.

Technical Association of the Pulp and Paper Industry (TAPPI)
Technology Park/Atlanta
P.O. Box 105113
Atlanta, GA 30348
Phone: 770-446-1400
Fax: 770-446-6947
Internet: www.tappi.org
Members: 33,000
Staff: 95
Budget: \$13,000,000
Contact: Charles Bohanan
Technical Divisions Operator

The Technical Association of the Pulp and Paper Industry (TAPPI) represents executives, managers, engineers, research scientists, superintendents, and technologists in the pulp, packaging, paper, and allied industries. Founded in 1915, TAPPI is split into eleven divisions, which include: environmental, research and development, paper and board manufacture, and pulp manufacture. Though its headquarters are in Atlanta, TAPPI is also divided into 27 regional groups. Overall, TAPPI provides a variety of services to its members. TAPPI conducts conferences on topics such as forest biology, environment, packaging, pulp manufacture, and R&D

in addition to a more general annual conference. TAPPI also develops testing methodologies for process control and laboratory analysis. The main annual project of the TAPPI Environmental division consists of an environmental issues industry conference. In 1995, TAPPI launched a campaign to educate the public on industry environmental facts. TAPPI publications include an annual *Membership Directory*, a monthly *TAPPI Journal*, and the publication of research results. TAPPI's publications are available via an online catalogue and record retrieval system called TAPPI-net available at 800-332-8686.

Paper Industry Management Association

1699 Wall Street, Suite 212

Mount Prospect, IL 60056

Phone: 847-956-0250

Fax: 847-956-0520

Internet: www.pima-online.org

Members: 5,000

Staff: 14

Budget: \$2,000,000

Contact: Scott Baumruck, Chief
Operating Officer

The Paper Industry Management Association, or PIMA, is a professional organization of pulp, paper mill, and paper converting production executives. The association has provided management oriented information to its membership since 1919. This association goal is embodied by their publications: an annual *Handbook* of the industry, a monthly *PIMA Magazine* dedicated to improving efficiency and productivity, and the annual *PIMA Pulp and Paper Mill Catalog* reference for industry management. This catalog contains information regarding equipment, raw materials, and chemical products, in addition to a trade name directory, a listing of manufacturers and suppliers, and a listing of reports relevant to pulp and paper manufacture.

IX. CONTACTS/ACKNOWLEDGMENTS/RESOURCE MATERIALS/BIBLIOGRAPHY

For further information on selected topics within the pulp and paper industry a list of publications and contacts are provided below:

Contacts⁴

Name	Organization	Telephone/Email	Subject
Scott Throwe	U.S. EPA, Office of Compliance	202-564-7013 throwe.scott@epa.gov	Pulp and paper industry sector lead
Steve Shedd	U.S. EPA, Office of Air and Radiation	919-541-5397 shedd.steve@epa.gov	Combustion MACT NESHAP Subpart S
Jeff Telander	U.S. EPA, Office of Air and Radiation	919-541-5427 telander.jeff@epa.gov	Non-combustion MACT NESHAP Subpart MM
Don Anderson	U.S. EPA, Office of Water	202-260-7189 anderson.donald@epa.gov	Effluent guidelines and standards
Deborah Nagle	U.S. EPA, Office of Water	202-260-2656 nagle.deborah	Cooling water intake standards
Tim Smith	Office of Air and Radiation	919-541-4718 smith.tim@epa.gov	Guidelines on Best Available Retrofit Technology (BART)
Kevin Culligan	Office of Air and Radiation	202-564-9172 culligan.kevin@epa.gov	NOx SIP Call
Dickson Ozokwelu	U.S. Department of Energy, Office of Industrial Technology	202-586-8501 dickson.ozokwelu@ee.doe.gov	Technologies and processes with the potential for energy, environmental, and cost savings
James Bond	USDA Forest Service	608-231-9480 jbond@fs.fed.us	Research on environmentally benign and resource-conserving processes for the production and utilization of wood pulp fibers and chemical byproducts

⁴ Many of the contacts listed above have provided valuable background information and comments during the development of this document. EPA appreciates this support and acknowledges that the individuals listed do not necessarily endorse all statements made within this notebook.

General Profile

AF&PA, 1999. *1999 Statistics: Data Through 1998*. American Forest & Paper Association.

McLaren, J et al., 2000. "North American Status Report," *Pulp & Paper*. August.

Pulp & Paper Magazine, 2001. "PaperHelp Online."
http://www.paperloop.com/pp_mag/paperhelp/homepage.shtml.

U.S. Census Bureau, 1998. 1997 County Business Patterns for the United States.

U.S. Census Bureau, 2000a. *1997 Economic Census: Bridge Between NAICS and SIC*.

U.S. Census Bureau, 2000b. *1997 Economic Census: Comparative Statistics for United States (1987 SIC Basis)*.

U.S. Department of Commerce/International Trade Administration, 2000. *U.S. Industry & Trade Outlook 2000*. U.S. Department of Commerce, McGraw-Hill.

U.S. Department of Energy, 2000. "Forest Products Project Fact Sheet: Closed-Cycle Bleach Kraft Pulp Production." Office of Industrial Technologies. October.

U.S. Environmental Protection Agency, 1993. *Development Document for Proposed Effluent Limitations Guidelines and Standards for the Pulp, Paper, and Paperboard Point Source Category*. October.

U.S. Environmental Protection Agency, 1999. Toxics Release Inventory Database.

Process Descriptions and Chemical Use Profiles

AF&PA, 1994. *1994 Statistics, Data Through 1993*. Washington, D.C.: American Forest and Paper Association.

AF&PA, 1995a. *Improving Tomorrow's Environment Today*. January.

AF&PA, 1995b. Personal communication.

AF&PA, 1995c. *Recovered Paper Deinking Facilities*. American Forest and Paper Association: Economics and Materials Department. January.

AF&PA, 2000a. *Paper Recovery Progress Report*. May.

AF&PA, 2000b. *2000 Recovered Paper Statistical Highlights*.
http://www.afandpa.org/recycling/Rec_introduction.html.

AF&PA, 2000c. *Paper Recycling Facts*.
http://www.afandpa.org/recycling/Rec_paperrecfacts_open.html.

AF&PA, 2002. Written comments from Richard Wasserstrom to Seth Heminway, EPA Office of Compliance. March 7.

Richard J. Albert, "Effluent-Free Pulp Mill Possible with Existing Fiberline Equipment," *Pulp & Paper*, 68(7), July 1994, pp. 83-89.

Alliance for Environmental Technology, 2001. "Trends in World Bleached Chemical Pulp Production: 1990-2000." January.
http://www.aet.org/reports/market/aet_trends_2000.html.

American Paper Institute. *Report on the Use of Pulping and Bleaching Chemicals in the U.S. P&P Industry*, June 26, 1992.

Lee Brunner and Terry Pulliam, "Comprehensive Impact Analysis of Future Environmentally Driven Pulping and Bleaching Technologies," 1992 TAPPI *Pulping Conference*, Boston, MA.

David Forbes, "Mills Prepare for Next Century with New Pulping, Bleaching Technologies," *Pulp & Paper*, Sept. '92.

Pulp and Paper Magazine, 2001. PaperHelp Online Encyclopedia,
http://www.paperloop.com/pp_mag/paperhelp.

Smook, G.A., 1992. *Handbook for Pulp & Paper Technologists*. Second edition. Vancouver: Angus Wilde Publications.

U.S. Department of Commerce, 2000. *U.S. Industry & Trade Outlook 2000*, McGraw-Hill Companies and U.S. Department of Commerce/International Trade Administration.

U.S. EPA, 1988. *104-Mill Study*.

U.S. EPA, 1990. *Summary of Technologies for the Control and Reduction of Chlorinated Organics from the Bleached Chemical Pulping Subcategories of the Pulp and Paper Industry*.

U.S. EPA, 1990. *1990 National Census of Pulp, Paper, and Paperboard Manufacturing Facilities*.

U.S. EPA, 1993a. *Development Document for Proposed Effluent Limitations Guidelines and Standards for the Pulp, Paper, and Paperboard Point Source Category*. October.

U.S. EPA, 1993b. *Pollution Prevention Technologies for the Bleached Kraft Segment of the U.S. Pulp and Paper Industry*.

U.S. EPA, 1993c. *Pulp, Paper and Paperboard Industry - Background Information for Proposed Air Emission Standards: Manufacturing Processes at Kraft, Sulfite, Soda, and Semi-Chemical Mills (NESHAP)*.

U.S. EPA, 1995. Office of Water, Personal communication. June.

U.S. EPA, 2002. Personal communication from Jacquelyn Vega, National Enforcement Investigations Center, to Seth Heminway, Office of Compliance. March 1.

VDP, 1997. *Papier '97 - Ein Leistungsbericht*. Verband Deutscher Papierfabriken: Bonn, Germany.

Chemical Releases and Transfers

Air & Waste Management Association, 1992. *Air Pollution Engineering Manual*.

U.S. EPA, 2001a. AIRS Database. Office of Air and Radiation. November.

U.S. EPA, 2001b. Toxics Release Inventory Database.

Pollution Prevention

Chlorine-Free Bleaching of Kraft Pulp: Feasibility Study, sponsored by Domtar Inc., the Ontario Ministry of the Environment, and Environment Canada, June 1993. Available from Great Lakes Pollution Prevention Centre 519-337-3423.

Howard Deal, "Environmental Pressure Causes Changes in Bleaching Technologies, Chemicals," *Pulp & Paper*, Nov. '91.

Bruce Fleming, *Alternative and Emerging Non-Kraft Pulping Technologies*, EPA-744R-93-002.

Neil McCubbin, *Costs and Benefits of Various Pollution Prevention Technologies in the Kraft Pulp Industry*, EPA-744R-93-002.

NCASI Technical Workshop-- *Effects of Alternative Pulping and Bleaching Processes on Production and Biotreatability of Chlorinated Organics*, NCASI Special Report No. 94-01, Feb. 1994.

U.S. EPA, 1993. *Pollution Prevention Technologies for the Bleached Kraft Segment of the U.S. Pulp and Paper Industry*, EPA/600/R-93/110

Regulatory Profile

U.S. EPA, 1997. *Fact Sheet: EPA's Final Pulp, Paper, and Paperboard "Cluster Rule" – Overview*. November.

U.S. EPA, 1998. *Pulp and Paper NESHAP: A Plain English Description*. November.

U.S. EPA, 1999a. *Kraft Pulp Mill Compliance Assessment Guide*. May.

U.S. EPA, 1999b. *Questions and Answers for the Pulp and Paper NESHAP*. September.

U.S. Government Printing Office, 2001a. *Unified Agenda*. Volume 66, Number 93, Pages 26264-26265.

U.S. Government Printing Office, 2001b. *Unified Agenda*. Volume 66, Number 93, Pages 26269-26270.



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